

### **REMARKS**

Applicant has carefully reviewed the Examiner's objections, rejections, and comments as found in the Office Action dated July 18, 2006 and provides the following remarks regarding the Office Action. Claims 1 - 9, 18, 19, and 25 are pending in this application.

#### **New Matter - 35 USC §132(a)**

The Examiner has rejected the amendment filed June 16, 2006 under 35 USC 132(a) because it introduces new matter into the disclosure. This rejection is respectfully traversed. Nevertheless, Applicant has canceled the amended disclosure presented in the June 16, 2006 response. Therefore, it is believed that this rejection is overcome regarding Claim 1.

#### **Written Description - 35 USC §112, First Paragraph**

The Examiner has rejected Claims 3 and 25 under 35 USC §112, first paragraph, as failing to comply with the written description requirement. This rejection is respectfully traversed. Nevertheless, Applicant has canceled Claims 3 and 25. Therefore, it is believed that this rejection is overcome regarding these claims.

#### **Written Description - 35 USC §112, Second Paragraph**

The Examiner has rejected Claims 3 and 6 - 9 under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This rejection is respectfully traversed. Claims 3 and 9 have been canceled. For the purposes of clarity, Claims 6 - 8 have been amended to include the limitations of Claim 9. One skilled in the art would clearly understand that one of the elements claimed can be present in a particular amount within its claimed range and that the other elements may be present within their range while the basis of the whole composition is 100 parts by weight of the total polyol prepolymer chain extender. MPEP 2163.05(III).

#### **Claim Rejection - 35 USC §103(a)**

The Examiner rejected Claims 1, 2, 4, 5, and 18 - 19 under 35 U.S.C. §103(a) as being unpatentable over WO 02/10255, herein Herzig et al. for the reasons of record. This rejection is respectfully traversed.

Applicant respectfully submits that the WO 02/10255, as interpreted by Herzig et al. neither forms the basis of nor establishes a *prima facie* case of obviousness. For a *prima facie* case of

obviousness to be established, the Examiner must show that one or more references that were available to the inventor meet three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP 2142.

The Herzig et al. reference does not meet all three criteria. First, the Herzig et al. reference does not teach every element of the claimed invention. As argued previously, the Herzig et al. reference discloses a reaction product between a *linear* epoxy-containing organosilicon compound and a polyamine that are non-crosslinked and that are only linear silicon containing molecules, as opposed to branched silicon containing molecules as disclosed in the present application. (See col. 2, ln. 52 – col. 3, ln. 2; col. 3, lns. 21 – 38) Additionally, the Herzig et al. reference discloses alpha-omega organosilicon compounds, which are *linear* silicon containing compounds and not *branched* silicon containing compounds. (See col. 8, lns. 63 – 67; col. 14, lns. 25 – 29, 43 – 47; col. 15, lns. 63 – 67) The reaction products have linear silicon containing molecules, which are contrary to the branched silicon containing molecules as disclosed in the present application and as found in the amended independent Claims 1 and 18.

In addition, if equimolar portions of an amine, such as Jeffamine 200, were mixed and heated with equimolar portion of a branched epoxy functional silicone, a gel and not the desired liquid would be produced. Also, if an aromatic diamine material is mixed and heated with equimolar portions of a branched epoxy functional silicone, such as HP 1000<sup>®</sup>, a gel and not the desired liquid would be produced. Furthermore, the Herzig et al. reference uses a solvent based reaction to avoid creating a gel (Col. 8, Ln. 65 – Col. 9, Ln. 9). The Herzig et al. reference teaches stopping the reaction before it becomes a gel and then protonating the intermediate to create a stable alpha omega material, not a branched system as described and claimed in the present application.

If the Herzig et al. reference were to use a branched system, a stable compound would not be produced, because a linear amine, like a diamine, mixed with a branched epoxy functional silicone, such as HP 1000<sup>®</sup>, produces a dimerized or trimerized reaction, thus the number of centers becomes almost exponentially large to produce an undesirable gel. To avoid producing such a gel, the Herzig et al. reference only works with alpha omega diamines and alpha omega epoxy functional

silicones; such materials will not gel and can become very high in molecular weight with a desired viscosity of a liquid. Therefore, to control the molecular weight of the Herzig et al. reference material, a monofunctional amine, such as n-octylamine, is used, which by its use would not provide a cross link of the present application. Also, the Herzig et al. reference dissolves the polymer in materials such as diethylene glycol and dibutyl ether, followed by protonating the intermediate with acetic acid. The present application does not involve any of these steps to create a liquid polyurea having a desired viscosity. The Applicant requests that the Examiner carefully review the cited portions of the Herzig et al. reference for understanding of these limitations of Herzig et al. reference.

Further, as stated previously, if a branched silicone molecule was cold blended with an amine, such as Jeffamine 200, the two materials would phase separate, because a silicone does not want to incorporate into a polymer. This is because two or more polymers are generally incompatible when mixed together. For example, when mixing most silicones, polyurethanes, and polyureas together a phase separated mixture is produced. Additionally, if these two components were then mixed with a B-component isocyanate, they all would phase separate out when a user went to use them. It is well known that by mixing epoxy groups with amines produces amino alcohols, thus the Herzig et al. reference does not obviate this problem. By simply combining what is taught by the Herzig et al. reference the desired material as disclosed and claimed in the present application would not be achieved.

Conversely, as found in the original specification, examples, and amended Claim 1 and original Claims 18, the present application includes a molar excess of at least one amine relative to the branched epoxy functional silicone. The present application solves the limitations found in the Herzig et al. reference by controlling the viscosity by using polymeric amines, such as diamines, and aliphatic amines, such as diamines, in combination with a trifunctional silicone, which would otherwise be problematic but for the amine being in a molar excess to the epoxy functional silicone. By using a molar excess of amines in combinations with an epoxy functional silicone, the present application is able to produce desirable prepolymers, which then can react with an isocyanate to produce a modified polyurea not achievable by that disclosed in the Herzig et al. reference.

Therefore, as argued above, the Herzig et al. reference teaches away from the present invention that uses at least one amine in a molar excess relative to the at least one branched epoxy functional silicone.

Moreover, in light of the above arguments, there is not a reasonable expectation of success that the Herzig et al. reference would produce a stable liquid polyol prepolymer as disclosed and claimed in the present application. For the reasons stated above with respect to the Herzig et al. reference, Applicant respectfully submits that it does not form the basis of a *prima facie* case of obviousness of Claims 1 and 18. Therefore, it is believed that Claims 1 and 18 are allowable under 35 U.S.C. §103(a). Claims 2, 4, 5, and 19 depend from and include all the limitations of amended Claims 1 and 18, respectively, and thus they are also believed to be allowable under 35 U.S.C. §103(a).

#### Claim Rejection – 35 USC §103(a)

The Examiner rejected claims 1, 2, 4, 5, 18, and 19 under 35 USC 103(a) as being unpatentable over Raleigh et al. This rejection is respectfully traversed.

As discussed above, independent Claim 1 has been previously amended to further clarify the present invention. The Raleigh et al. reference does not teach the invention as found in the present Claim 1 and original Claim 18, that both include the limitation that the at least one amine is present in a molar excess relative to at least one epoxy functional silicones. Thus there exists no reasonable expectation of success of the Raleigh et al. reference to provide a polyol prepolymer chain extender for a silicone modified polyurea of the present invention. Additionally, the Raleigh et al. reference does not teach or suggest all the claim limitations of the present application. Therefore, the Applicant respectfully submits that in light of the arguments set forth above the Raleigh et al. reference neither forms the basis of nor establishes a *prima facie* case of obviousness. Therefore, it is believed that Claims 1 and 18 are allowable under 35 U.S.C. §103(a). Claims 2, 4, 5, and 19 depend from and include all the limitations of amended Claims 1 and 18, respectively, and thus they are also believed to be allowable under 35 U.S.C. §103(a).

In view of the above amendments and remarks, Applicant believes the pending application is in condition for allowance. Applicant believes no fee is due with this response. However, if a fee is

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due, please charge our Deposit Account No. 50-2816, under Order No. 009608.0113PTUS from which the undersigned is authorized to draw.

Respectfully submitted,  
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Dated: January 18, 2007

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